

Although a subscriber is identified by using a subscriber's ID number in the fourth exemplary embodiment of the present invention, a unique ID number of the recording/reproducing apparatus itself may be used instead of the subscriber's ID number. Similar effect is obtained in an information on demand system that an owner of the write/read device is discriminated from the unique ID number of the recording/reproducing apparatus itself and the charge is collected from the owner of the recording/reproducing apparatus.

The system can be also composed so that the server registers the title name of the program for a particular program and when the subscriber wants to write the title name, the terminal controller can check at the terminal controller if the subscriber is requesting a server's approval.

The charging system can be made so that the information can be reproduced by only a recording/reproducing apparatus which was used to record the audio/video information and by any other reproducing apparatus. In this case, the system is composed so that the descramble apparatus is connected to an arbitrary reproducing apparatus, the descramble apparatus certifies whether the medium in which the information was written has an approved ID number and only when reading from the medium certified by the descramble apparatus, the descramble apparatus performs normally.

According to an information on demand system in accordance with exemplary embodiments of the present invention, when a copy without any deterioration of sound/picture quality is made, a different charging system from usual charge can be set. Especially, when an analog signal is outputted to a recording/reproducing apparatus as they are, an audio/video information having almost same quality as the server's information is recorded in a recording medium of the recording/reproducing apparatus and it is significant to provide with three charging systems.

Because programs and informations are always recorded/written in recording medium based on a subscriber's ID number and a recording/reproducing apparatus ID number, it is possible to restrict a recording/reproducing apparatus used at reproducing.

The invention may be embodied in other specific form without departing from the spirit or essential characteristics thereof. The present embodiment is therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed:

1. An information on demand system comprising:
 - a server apparatus for providing information according to a request from a subscriber;
 - display means for displaying said information provided by said server apparatus; and
 - recording means for recording said information provided by said server apparatus;
 wherein a different amount is charged to said subscriber among a) in the case in which said information is provided to said display means, b) in the case in which said information is provided to said recording means and c) in the case in which said information is provided to said display means and to said recording means.
2. An information on demand system comprising:
 - information providing means for providing information according to a request from a subscriber;

information receiving means for receiving said information provided by said information providing means;

display means for displaying a further information signal output from said information receiving means;

recording means for recording said further information signal of said information receiving means;

subscriber mode discriminating means for discriminating whether said further information signal of said information receiving means is provided to one of said display means and said recording means;

charging means for charging a different amount among a) in the case in which said further information is provided to said display means, b) in the case in which said further information is provided to said recording means and c) in the case in which said further information is provided to said display means and to said recording means according to an output of said subscriber mode discriminating means; and.

charge registering means for registering charge data output from said charging means.

3. A server apparatus comprising:

subscriber identification means for reading an identifying information to identify a subscriber;

information providing means for providing information according to a request from said subscriber;

subscriber mode recognizing means for discriminating whether said information providing means provides said information a) to a subscriber display means, b) to a subscriber recording means or c) to said subscriber display means and said subscriber recording means;

charging means for charging a different amount among a) in the case in which said information is provided to said subscriber display means, b) in the case in which said information is provided to said subscriber recording means and c) in the case in which said information is provided to said subscriber display means and to said subscriber recording means according to an output of said subscriber mode recognizing means; and

charge registering means provided for every subscriber for registering a charge data output from said charging means; and wherein said charge registering means accumulates the charge data output from said charging means at said charge registering means corresponding to said identifying information according to a discriminating information discriminated at said subscriber identification means.

4. A server apparatus comprising:

provided information designating means for providing information requested by a subscriber to a server;

information receiving means for receiving said information provided by said server according to said subscriber request;

subscriber mode discriminating means for discriminating whether an information signal output from said information receiving means is provided a) to a display means, b) to a recording means or c) to both the display means and the recording means and informing said subscriber through said information receiving means.

5. A subscriber apparatus comprising:

information receiving means for receiving a provided information according to a request from a subscriber;

subscriber mode discriminating means for discriminating whether a further information signal output from said information receiving means is provided a) to a display

means. b) to a recording means or c) to both said display means and said recording means:

charging means for charging a different amount among a) in the case in which said further information is provided to said display means. b) in the case in which said further information is provided to said recording means and c) in the case in which said further information is provided to said display means and to said recording means according to an output of said subscriber mode discriminating means; and

charge registering means for accumulating an amount output from said charging means.

6. A subscriber apparatus as recited in claim 5; wherein the charge registering means periodically informs the subscriber's charge to a server.

7. A subscriber apparatus comprising:

demodulating means for demodulating an information signal provided by a server; and

terminal control means for inputting a demodulated information signal of said demodulating means, outputting a signal to recording means which records said demodulated information signal in a recording medium in which a subscriber identification number is recorded and controlling supply of the output signal; and wherein

said terminal control means registers said subscriber identification number recorded in said recording medium of said recording means and an information identification number provided from said server in said terminal control means, when a subscriber finishes the recording of the information signal provided from said server in said recording medium of said recording means.

8. A subscriber apparatus as recited in claim 7; wherein said demodulated information signal is not output to said recording means, when the subscriber identification number is not recorded in the recording medium of said recording means.

9. A subscriber apparatus as recited in claim 7 or 8; wherein

an identification number of said recording means is used instead of the subscriber identification number.

10. A subscriber apparatus as recited in claim 9 wherein: said subscriber is determined from the identification number of said recording means; and

a charge is collected from said subscriber.

11. A subscriber apparatus as recited in claim 10 wherein when the subscriber records information provided from an information providing apparatus, said information can not be recorded unless the subscriber is approved by the server.

12. A method for providing information on demand comprising the steps of:

receiving a request from a subscriber requesting information;

transmitting the information to at least one of a subscriber display means and a subscriber recording means for displaying and recording the information respectively, and

charging the subscriber one of a plurality of amounts depending upon whether the transmitted information is intended for recording on said recording means.

wherein said request for information indicates whether the subscriber is recording said information on said recording means.

13. An apparatus for providing information on demand comprising:

receiving means for receiving a request from a subscriber for information.

5 sending means for sending the information to at least one of a subscriber display means and a subscriber recording means for displaying and recording the information respectively. and

10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300 305 310 315 320 325 330 335 340 345 350 355 360 365 370 375 380 385 390 395 400 405 410 415 420 425 430 435 440 445 450 455 460 465 470 475 480 485 490 495 500 505 510 515 520 525 530 535 540 545 550 555 560 565 570 575 580 585 590 595 600 605 610 615 620 625 630 635 640 645 650 655 660 665 670 675 680 685 690 695 700 705 710 715 720 725 730 735 740 745 750 755 760 765 770 775 780 785 790 795 800 805 810 815 820 825 830 835 840 845 850 855 860 865 870 875 880 885 890 895 900 905 910 915 920 925 930 935 940 945 950 955 960 965 970 975 980 985 990 995



5. 7

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Method	Time	Space	Verdict	Time	Space	Verdict
Proposed	$\mathcal{O}(n^2)$	$\mathcal{O}(n)$	Pass	$\mathcal{O}(n^2)$	$\mathcal{O}(n)$	Pass
Naive	$\mathcal{O}(n^3)$	$\mathcal{O}(n)$	Fail	$\mathcal{O}(n^3)$	$\mathcal{O}(n)$	Fail
Naive	$\mathcal{O}(n^3)$	$\mathcal{O}(n^2)$	Fail	$\mathcal{O}(n^3)$	$\mathcal{O}(n^2)$	Fail

1 14. An information receiver
2 for at least one of receiving information and
3 recording said information on a recording
4 medium.

5 said information charged
6 differently depending upon whether or not
7 said information is recorded on said
8 recording medium.

9 said recording medium
10 evaluated to determine whether said
11 recording medium includes an identifier
12 prior to permitting recording of said
13 information on said recording medium.

1 15. An information receiver
2 according to claim 14, wherein said
3 information receiver determines whether
4 said identifier is an approved identifier.

1 16. An information receiver
2 for at least one of receiving information and
3 recording said information on a recording
4 medium, comprising:

5 receiving means for receiving
6 information;

7 recording means for recording
8 at least a portion of the information onto a
9 recording medium, said information charged
10 differently depending upon whether or not
11 said information is recorded on said
12 recording medium;

13 verification means for
14 verifying that the recording medium
15 includes an identifier prior to permit
16 recording of said information on said
17 recording medium.

1 17. An information receiver
2 according to claim 16, wherein said
3 verification means verifies whether the
4 identifier is an approved identifier.

1 18. An information receiver
2 according to claim 14, further comprising
3 determination means for determining
4 whether the information should be provided
5 to the recording medium.

1 19. An information receiver
2 according to claim 16, further comprising
3 determination means for determining
4 whether the information should be provided
5 to the recording medium.

1 20. An information receiver
2 according to claim 18, further comprising
3 notification means for notifying the
4 determination made by said determination
5 means to a transmitter transmitting the
6 information.

1 21. An information receiver
2 according to claim 19, further comprising
3 notification means for notifying the
4 determination made by said determination
5 means to a transmitter transmitting the
6 information.

1 22. A method of charging
2 information, said method comprising the
3 steps of:

4 receiving information in an
5 information receiver;

6 recording the information onto
7 a recording medium if the recording medium
8 includes an identifier (ID); and

9 charging a different amount
10 based on whether or not the information is
11 recorded on the recording medium.

1 23. A method of charging
2 information according to claim 22, said
3 method further comprising the step of
4 verifying that said recording medium
5 includes said identifier.

1 24. An information receiver
2 according to claim 14, said information
3 receiver further comprising:

4 a timer for indicating a time
5 period; and

6 a storage device in which said
7 information is located,

8 wherein upon expiration of
9 said time period, availability of said
10 information in said storage device is
11 impaired.